

# Medical Advancements of the United States Civil War

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The Civil War, from 1861 to 1865, was the most lethal conflict in United States history, amassing a casualty count of over one million armed forces and civilians. The onslaught of war pressed the need for organized military hospitals, field nursing, sanitation, and innovative ways of treating the horrendous wounds caused by new rifling, artillery, and naval battle. Half a century before the First World War, the knowledge and practices expanded in the Civil War are widely regarded as an important step in the modernization of medicine not only for America, but for the world.<sup>1</sup> Advancements made specifically in medical practice, sanitation, nursing, medical understanding, and knowledge during the United States Civil War were crucial in the global development of both military and public medicine.

Today, it might seem natural that a part of a country's military would be dedicated to medicine. However, before the Civil War, the practice of "allopathic"<sup>2</sup> medicine in regard to military conflict was reserved only for great times of need. Once the war began, Americans recognized the urgent need for reform. Real reform to military medicine had been taking shape in the British Crimean Campaign, in which leading Union general George McClellan was an observer. This movement took shape in North America with the creation of the American Sanitary Commission, which pushed for medical reform, especially after early battles, such as First Manassas,<sup>3</sup> were handled so poorly in regards to medicine.<sup>4</sup> By 1862, the Lincoln

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<sup>1</sup> Dale C. Smith. "Military Medical History: The American Civil War." *OAH Magazine of History* 19, no. 5 (2005): 17-19. <http://www.jstor.org.proxy.lib.uwaterloo.ca/stable/25161973>.

<sup>2</sup> As defined in the Free Dictionary by Farlex, allopathic medicine is

"A method of treating disease with remedies that produce effects different from those caused by the disease itself."

<sup>3</sup> The particular details of the medical blunders at Manassas are elaborated in Dale C. Smith's article, which can be found at <http://www.jstor.org.proxy.lib.uwaterloo.ca/stable/25161973>.

<sup>4</sup> Dale C. Smith. "Military Medical History: The American Civil War." *OAH Magazine of History*

administration recognized that change was necessary and appointed American Sanitary Commission leader William Hammond to the position of Surgeon General of the Union Army Medical Corps.<sup>5</sup> One of Hammond's important decisions was to place Dr. Jonathan Letterman as Medical Director of the Army of the Potomac, the Union's strongest force. Under Letterman, the army's medical capabilities grew exponentially with the introduction of an ambulance corps, the establishment of military hospitals, and stricter regulations on supply and inspection. According to Dr. Dale C. Smith, a professor of Military Medicine History, these reforms not only aided the Army of the Potomac but "became a permanent part of the American military's medical doctrine and would influence military medicine throughout the world."<sup>6</sup>

For a historian, this information fits neatly on a linear timeline of developments in military medicine. However, it is also important to understand the importance of these reforms at the time. Americans, both military and civilian, realized the progress that was being made as a source of national pride. The accomplishments were easily noticeable; between the beginning of war at Fort Sumter in 1861 and its end in 1865, the military went from having zero to 195 hospitals, with facilities for 150,000 patients.<sup>7</sup> The changes over this four-year period were rapid and vast. This is evident when analyzing a passage written by a *New York Times* correspondent in July of 1865. The unnamed writer boasts about the sheer size of the medical forces, saying at the beginning of the war "there were about one hundred commissioned medical officers in our little peace establishment of fifteen thousand men. Before the war closed we had five hundred commissioned officers of the medical staff, two thousand contract physicians and an immense

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<sup>5</sup> Dale C. Smith. "Military Medical History: The American Civil War." *OAH Magazine of History*

<sup>6</sup> Dale C. Smith. "Military Medical History: The American Civil War." *OAH Magazine of History*

<sup>7</sup> Correspondence of the New York Times. "OUR MILITARY HOSPITALS." *New York Times (1857-1922)*, Jul 02, 1865. <http://search.proquest.com.proxy.lib.uwaterloo.ca/docview/91917008?accountid=14906>.

force of surgeons and their assistants, in service.”<sup>8</sup> Apart from the sheer scale of medical advancement, this article also addresses the government’s reforms in patient care and disability services. The correspondent describes that “those who had been crippled by the loss of limbs expressed great gratification, because the government had granted them a sum of money to pay, in part, for artificial limbs.”<sup>9</sup> This represents not only a change in medical practice, but also the beginnings of medical benefits for veterans. Through military conflict, the government and public better understood its responsibility to provide adequate facilities and care for those who fought for their country. Moreover, the creation of a military-run medical force drove the existence of hospitals away from the general trend of being church or charity run organizations, and instead became more publicly accessible. Soldiers’ positive, even lifesaving experiences with hospitals, and stories thereof contributed to the public demand for them to become more commonplace.<sup>10</sup> Thus, the urgent need for medical reform during the United States Civil War did a lot to change the physical practice of medicine, as well as public and government attitudes toward it.

The same *New York Times* correspondent who commented on the development of hospitals commented on their sanitary practices. The observer stated that “the sanitary regulations of the hospitals reflect credit upon the surgeons in charge and their subordinates, the floors are scrubbed as clean as a neat housewife’s dresser; the beds are well aired, and the bedding frequently changed; the apartments are well ventilated...”.<sup>11</sup> The fact that sanitary regulations were a concern in this writer’s mind shows that the knowledge, both public and medicinal, of sanitation effecting health increased dramatically due to the Civil War. Although

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<sup>8</sup> Correspondence of the New York Times. "OUR MILITARY HOSPITALS." *New York Times*

<sup>9</sup> Correspondence of the New York Times. "OUR MILITARY HOSPITALS." *New York Times*

<sup>10</sup> Dale C. Smith. "Military Medical History: The American Civil War." *OAH Magazine of History*

<sup>11</sup> Correspondence of the New York Times. "OUR MILITARY HOSPITALS." *New York Times*

still decades away from understanding the spread of germs and viruses, the Civil War era saw surgeons and medical officials making sanitary innovations for the good of their patients. The advancements in sanitation came hand in hand with the growth of military hospitals. The Medical Department of the Army of the Cumberland, which was fronted by Eben Swift, took into account the research of European sanitary reformers to create the pavilion hospital. This design placed emphasis on ventilation and open space.<sup>12</sup> These hospitals also began the trend of separating and isolating patients in accordance with their affliction. Over time, records showed that death rates in these new pavilion hospitals were considerably lower than those of other designs.<sup>13</sup> Due to this success, pavilion hospitals dominated hospital architecture for two generations following the Civil War.<sup>14</sup> This idea of airborne illness and sanitation also impacted the surgical practices during the Civil War. Confederate surgeon, Dr. J. Julian Chisolm, for example, suggested later in the war that gunshot wounds be treated hermetically so as to avoid air from coming in contact with the wound.<sup>15</sup> Although beyond his time in germ theory, Chisolm's methods prevented airborne microbial infection and helped sterilize the patients.<sup>16</sup> Slowly, the medical authorities of the time recognized the importance of sanitation in preventing the spread of disease.

We know that these advancements were not isolated to the United States. A newspaper from 1880 describes the new Western hospitals being adopted in Japan. The same article says that, in 1880 Japan, "Western ideals of hygiene and sanitation are receiving increasing attention

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<sup>12</sup> Dale C. Smith. "Military Medical History: The American Civil War." *OAH Magazine of History*

<sup>13</sup> Michael R. Gilchrist. "Disease & Infection in the American Civil War." *The American Biology Teacher* 60, no. 4 (1998): 258-62. doi:10.2307/4450468.

<sup>14</sup> Dale C. Smith. "Military Medical History: The American Civil War." *OAH Magazine of History*

<sup>15</sup> As described in the free dictionary by Farlex, hermetic means "completely sealed, especially against the escape and entry of air."

<sup>16</sup> Michael R. Gilchrist. "Disease & Infection in the American Civil War." *The American Biology Teacher*

from all local authorities.”<sup>17</sup> In fact, it is not surprising to read that the first Japanese hospital was developed in 1861, in line with the outbreak of the Civil War. These hospitals were built in the pavilion style,<sup>18</sup> with the ability to isolate patients based on disease.<sup>19</sup> Japan being on the other side of the globe from the United States, but also having notoriously tense relations with America, proves how impressive the spread of sanitation methods were after the Civil War. The sanitary accomplishments, although not perfect as seen from the still rampant spread of diseases like dysentery and typhoid,<sup>20</sup> did indeed impact the modernization of medicine in the United States and the world.

Since hospitals had been set up and revolutionized for the doctors and patients, what about the actual medicine? Many new treatments were introduced or reformed. For example, the use of quinine to aid malaria patients and chloroform as an anaesthetic became common practice during the Civil War.<sup>21</sup> However, the Civil War dealt in such unprecedented numbers of diseased and wounded men that innovations had to be made on all fronts in order to save lives. This essay has focused on Northern innovations for the most part, because the North had more resources to build better institutions. But in the South, where resources were sparse due to Lincoln’s Anaconda blockade, which prevented the Confederates from accessing maritime trade, surgeons made desperate discoveries through methods that otherwise may never have been tried.<sup>22</sup> In relation to sanitation, southern surgeons found that by boiling horsehair or baking raw cotton, they could find an abundant alternative, sterile source for sutures and sponges, respectively. They

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<sup>17</sup> Cutter, J. 1880. "LEADING ARTICLES." *Philadelphia Medical Times (1871-1889)*, Sep 25, 652.  
<http://search.proquest.com.proxy.lib.uwaterloo.ca/docview/136882162?accountid=14906>.

<sup>18</sup> The article on Japanese hospitals describes pavilion hospitals in great detail, and gives the modern reader great insight into the construction of the past.

<sup>19</sup> Cutter, J. 1880. "LEADING ARTICLES." *Philadelphia Medical Times (1871-1889)*

<sup>20</sup> Michael R. Gilchrist. "Disease & Infection in the American Civil War." *The American Biology Teacher*

<sup>21</sup> Dale C. Smith. "Military Medical History: The American Civil War." *OAH Magazine of History*

<sup>22</sup> Michael R. Gilchrist. "Disease & Infection in the American Civil War." *The American Biology Teacher*

also discovered that maggots placed on a gangrenous wound would eat only infected flesh, allowing for the preservation of healthy flesh without amputation.<sup>23</sup> On both sides of the conflict, the experimentation with new chemicals to treat wounds resulted in serious medicinal progress.<sup>24</sup> Nitric Acid was found to be the most effective combatant to gangrene. It was an extremely painful treatment, and some thought too harsh on the already suffering patient. This remedy was often replaced with chlorine, which proved almost as useful as nitric acid and more manageable to a soldier's pain tolerance.<sup>25</sup> Documentation of this kind of experimentation would not only be paramount in Civil War efforts, but in coming conflicts across the world.

Out of the various theatres of war was also an increased curiosity regarding medicine. Surgeons were getting experience with trauma surgery and medicine like never before, and their thirst for greater knowledge was growing. Smith describes this particularly well in his publication *Military Medical History: The American Civil War*:

“The typical in [trauma] surgery prior to the hostilities had concentrated on bleeding points, bandaging, and minor operations like incision and drainage of abscesses. The experience with compound fractures and amputation, as well as efforts to control bleeding, worked toward a greater appreciation of the possibility of surgical therapy and a realization that surgical instruction was too limited in the typical American medical school.”<sup>26</sup>

This newfound desire to learn led into various medical efforts. Many states where it was illegal to practice on cadavers introduced legislature after the Civil War to make this available, and it is a method of teaching still utilized today.<sup>27</sup> This ensured that the gains of the Civil War would not be lost with a new generation of surgeons, not faced with the body count of their

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<sup>23</sup> Michael R. Gilchrist. "Disease & Infection in the American Civil War." *The American Biology Teacher*

<sup>24</sup> The Gilchrist article lists Potassium permanganate, sodium hypochlorite (bleach), bromine, iodine, chlorine, nitric acid, and creosote among the chemicals brought into use during the Civil War.

<sup>25</sup> Michael R. Gilchrist. "Disease & Infection in the American Civil War." *The American Biology Teacher*

<sup>26</sup> Dale C. Smith. "Military Medical History: The American Civil War." *OAH Magazine of History*

<sup>27</sup> Dale C. Smith. "Military Medical History: The American Civil War." *OAH Magazine of History*

predecessors. Likewise, Surgeon General William Hammond himself made preserving this knowledge his passion. Hammond collected pathological specimen samples from different wartime surgeons across the different theatres. His collection started the Army Medical Museum, which is known today as the Armed Forces Institute of Pathology.<sup>28</sup> Hammond and his fellow surgeons represented a growing trend towards public and private curiosity and respect for medicine – an attitude that is extremely prevalent in American culture today. The beginning of this attitude is captured quite well by the aforementioned *New York Times* correspondent, who closes off his article by saying:

“Our surgeons... receive less credit than is due to them for heroic services. They have to face the peril of most loathsome and dangerous diseases; they risk their lives in efforts to drive pestilence from the camp and the hospital; they staunch the bleeding wounds of our gallant men in the thickest of the fight. The entire army of the Union can bear witness that as a class they are deliberate in council and brave among the brave in the terrible hour of battle.”<sup>29</sup>

It would be remiss to write an assessment of Civil War medicine and not mention the tremendous contribution and growth of nursing. Through professional as well as volunteer efforts made by American women during the Civil War, lives were saved, and nursing and medicine was forever changed. Take the classic, infamous example of Clara Barton, a New Jersey native and schoolteacher whose non-partisan nursing efforts during the war turned into the international organization known as the Red Cross.<sup>30</sup> Needless to say, the Red Cross has a global reputation for handling crises of all sorts, and saving lives regardless of class, race, or politics. This all began because Barton set up an organization to match soldiers with their missing baggage after the First Manassas, an initiative which turned into widespread nursing, distributing

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<sup>28</sup> Dale C. Smith. "Military Medical History: The American Civil War." *OAH Magazine of History*

<sup>29</sup> Correspondence of the New York Times. "OUR MILITARY HOSPITALS." *New York Times*

<sup>30</sup> Encyclopædia Britannica Online, s. v. "Clara Barton", accessed November 16, 2016, <https://www.britannica.com/biography/Clara-Barton>.

supplies, and searching for missing persons as a result of the war. President Lincoln himself recognized her efforts.<sup>31</sup> Barton dedicated the rest of her life to bettering nursing practices internationally, serving in the Franco-Prussian and Spanish-American wars.<sup>32</sup> Her example bettered the status of women in medicine, and medicine itself, worldwide.

While Barton is a well-known example, many women struggled under a sexist system to reform nursing practices during the Civil War. They had to prove themselves in a system where male surgeons had complete discretion over hospital proceedings and patient care. Dr. Jane E. Schultz describes this challenging dynamic in her publication *The Inhospitable Hospital: Gender and Professionalism in Civil War Medicine*. She explains that women in hospitals “were expected to keep their charges clean and clothes and bedding in order, to prepare and serve food in accordance with surgeons’ instructions... Depending on surgeons’ confidence in them, women workers ... were allowed to change wound dressings and to assist in operations, particularly when huge numbers of casualties overwhelmed medical personnel after battles.”<sup>33</sup> Although the situation was better for nurses attached to military regiments, it was harder for a woman to achieve this placement.<sup>34</sup> Progress was, however, made for female nurses as early as 1861, when the Sanitary Commission and Surgeon General William Hammond publicly favoured accepting them over soldier nurses, because they were “more docile and efficient than men and were superior morale builders.”<sup>35</sup> Of course, this mandate did not become publicly accepted without the hard work, dedication, and competence of many women who put their lives at stake to improve the practice of nursing. As is seen in conflicts like the First and Second

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<sup>31</sup> Encyclopædia Britannica Online, s. v. "Clara Barton", accessed November 16, 2016

<sup>32</sup> Encyclopædia Britannica Online, s. v. "Clara Barton", accessed November 16, 2016

<sup>33</sup> Schultz, Jane E. "The Inhospitable Hospital: Gender and Professionalism in Civil War Medicine." *Signs* 17, no. 2 (1992): 363-92. <http://www.jstor.org.proxy.lib.uwaterloo.ca/stable/3174468>.

<sup>34</sup> Schultz, Jane E. "The Inhospitable Hospital: Gender and Professionalism in Civil War Medicine." *Signs* 17, no. 2

<sup>35</sup> Schultz, Jane E. "The Inhospitable Hospital: Gender and Professionalism in Civil War Medicine." *Signs* 17, no. 2



World War, organization of volunteer nurses was critical to the practice of medicine and saving the lives of soldiers. Due to the efforts of women like Clara Barton and countless others like her, this custom became more commonplace and respected worldwide.

In summary, the knowledge and practices expanded in the Civil War were an important step in the modernization of medicine, domestically and abroad. Advancements made in medical practice and establishment of hospitals, sanitation, nursing, and medical understanding and knowledge during the United States Civil War were critical in the progress of the medical field, as well as saving countless lives in a war that took so many. Along with technical innovations, the public attitudes surrounding the new hospitals, the study of medicine, and women's place in medicine were greatly shaped during the period surrounding the Civil War. These attitudes and innovations quickly spread overseas. In a conflict that took more American lives than any that would follow, the Civil War fundamentally changed many things. Medicine is without a doubt one of the greatest of these reforms.

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